

ABSTRACT OF THE DISCLOSURE

An apparatus for applying weft yarns in a cross direction to warp yarns assembled on a beam in parallel aligned relationship and having an adhesive scrim thereon includes a supply roll of the warp yarns on such a beam which are fed downstream of the apparatus by first laying the warp yarns onto a transfer belt to reduce the tension in the yarns and controlling them for application of the weft yarns. A transfer belt and warp yarns are first folded between folding bars into a cylindrical configuration where they are formed around the perimeter of an elongated mandrel having a heated section at its upstream end and a cooling section at its downstream end. The adhesive scrim is softened as the warp yarns pass over the heated section of the mandrel and shortly thereafter, weft yarns are wrapped around the warp yarns and the supporting transfer belt within a rotating tube having a plurality of longitudinally and circumferentially spaced spools of weft yarn disposed on its outer surface. The yarns are fed upstream from the spool along the rotating tube on which they are mounted and pass through a tensioning apparatus to unify the tension in the various yarns running along the tube. The uniformly tensioned weft yarns pass through individual equally circumferentially spaced nozzles around the circumference of the rotating tube where the yarns are deposited onto a laydown ring having a sloped surface that urges the yarns downwardly so they are deposited around the cylindrical surface of the mandrel and onto the adhesive scrim on the outer surface of the warp yarns. After having been deposited on the warp yarns, the transfer belt moves the fabric having warp and weft yarns across the cooling section of the mandrel where the adhesive is set. Subsequently, a cutter severs the weft yarns in a longitudinal line along the bottom edge of the cylindrical fabric and a pair of unfolding rods move the transfer belt and fabric carried thereby from the cylindrical form in which the fabric was created to a flat sheet form. After flattened into elongated sheet form, the fabric is separated from the transfer belt and accumulated on a take up drum.